

affected hemisphere, is a well-recognized finding in acute stroke. Several supranuclear lesions, such as in the cortical frontal eye fields or in the brainstem paramedian pontine reticular formation, can cause conjugate eye deviation.<sup>2</sup>

On CT scans, conjugate eye deviation or a lone abducting eye has been shown to reliably point toward the affected hemisphere in acute ischemic stroke.<sup>3</sup> Eye deviation observed on CT scans appears to be more common than is apparent on clinical examination. This is probably because most patients close their eyes during CT scanning, which removes fixation. Recognizing our patient's eye deviation might have allowed earlier recog-

nition of his subtle right hemispheric ischemic changes (Fig. 1B).

When eye deviation is observed that does not agree with clinical information, the patient and CT scan should be examined carefully. In some cases eye deviation may be away from the side of the brain lesion and toward the symptomatic body side, such as in thalamic infarction and non-stroke diagnoses (e.g., seizure).

Most stroke patients have readily identifiable and localized symptoms and clinical signs, but when there is limited history or findings on physical examination, as in our case, the detection of eye deviation on a CT scan can help to identify the affected hemisphere.

Jessica E. Simon

James Kennedy

J.H. Warwick Pexman

Alastair M. Buchan

Calgary Stroke Programme

Department of Clinical Neurosciences

University of Calgary

Calgary, Alta.

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## HEALTH AND DRUG ALERTS

### Concerns over lindane treatment for scabies and lice

**Reason for posting:** Scabies and lice infestations are common afflictions often remedied with topical therapies such as lindane,<sup>1,2</sup> a drug prescribed more than a million times last year in the United States.<sup>3</sup> However, lindane has several serious neurotoxic effects, ranging from dizziness, headaches and paresthesia, to seizures and even death.<sup>4</sup> The US Food and Drug Administration recently advised that these effects are more common in young children, elderly people and people weighing less than 50 kg and has recommended that the drug be used only as a second-line agent.<sup>4</sup>

**The conditions:** Scabies is caused by the mite *Sarcoptes scabiei*. The mites die if away from a human host for more than 72 hours.<sup>5</sup> Impregnated females (about 0.3 mm long) are transferred directly through close contact with people, bedding or clothing. They lay their eggs as they burrow under the skin, and after 3-4 days the larvae hatch and migrate to the skin surface, creating new burrows, where they mature into reproducing adults. Infestations often involve as few as 5-10 adult mites.<sup>5</sup> Elderly and im-

munocompromised hosts are at risk for a severe "crusted" form of scabies.<sup>1,5</sup> Initial infestations may be relatively asymptomatic for the first 4-6 weeks. In subsequent infestations, an intense, generalized, often nocturnal itch can develop within days. Pruritic lesions erupt along mite burrows in the finger webs, penis, breasts, and folds of the wrists, elbows and knees.<sup>1,5</sup> Secondary bacterial infections can occur, as can a papular rash on the buttocks, scapula and abdomen. Scabies is diagnosed clinically, aided by skin

scrapings showing mites, ova or feces.<sup>5</sup> Treatment of asymptomatic close contacts is advisable to avoid reinfestation.

Head lice infestation (pediculosis capitis) is caused by *Pediculus humanus capitis*.<sup>2,6</sup> These lice live close to the scalp for easy access to blood and warmth and will die without a human host within 1-2 days. Adult lice are transferred through close human contact or through contact with hats and other headgear, pillow cases and clothing. Daily, female lice lay up to 6 yellow-white, 1-mm long

#### Canadian Adverse Reaction Newsletter Bulletin canadien des effets indésirables

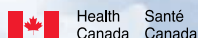
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oval eggs, or nits.<sup>6,7</sup> Nits are cemented to the base of the hair shaft, typically within 6.5 mm of the scalp.<sup>6</sup> After a week, a pin-head-sized nymph hatches and, within a week, matures into an adult the size of a sesame seed.<sup>7</sup> Most infestations are asymptomatic, but local reactions to the louse saliva can cause a tickly or itchy scalp sensation. Secondary bacterial infections can occur. Close contacts should be checked and treated if infested.<sup>8</sup>

For scabies and head lice infestations, contaminated clothing and toys need to be laundered in hot water, or isolated in a plastic bag for 2 weeks or more.<sup>2</sup> Pets do not carry scabies mites or human lice.

**The drugs:** Lindane (gamma benzene hexachloride), a lipophilic insecticide, has been used since the 1950s.<sup>4</sup> Although most serious neurotoxic effects result from misuse of the product, one-fifth occur in patients using the drug appropriately.<sup>4</sup> At particular risk are elderly people, young children and people weighing less than 50 kg,<sup>4</sup> possibly because of increased systemic absorption and neurologic susceptibilities. Lindane is contraindicated in people with seizure disorders<sup>4</sup> and should be used cautiously in those at risk of seizures (e.g., people

taking HIV treatments, antipsychotics, bupropion, systemic steroids, quinolone antibiotics or antimalarial drugs, and people with head injuries or intracranial lesions, eating disorders, or benzodiazepine or ethanol abuse).<sup>4</sup> Toxic effects can be minimized by applying small amounts of the drug for shorter than normal periods, by avoiding open sores, the eyes and the mouth, and by not repeating treatment or by maximizing the time between treatments.<sup>9,10</sup> Lindane is absorbed more rapidly into warm, wet or oily skin, or skin that is covered with occlusive diapers, shower caps or tight clothes.<sup>10</sup> Pregnant women should preferentially use alternative treatments (see below) but may use lindane cautiously if other therapies have failed or are inappropriate.<sup>11</sup> Breast-feeding women should pump and discard milk for at least 24 hours after using lindane.<sup>9</sup>

Several scabicides and pediculocides are commonly prescribed in Canada (Table 1). Local resistance, particularly of lice, to agents such as synthetic pyrethroids and permethrin may result in treatment failures.<sup>12</sup> DDT, malathion, carbamate agents and oral ivermectin are not available in Canada. Combining a topical treatment with an oral antibiotic (e.g., trimethoprim-sulfamethoxazole) may increase the success of head lice treatment.<sup>13</sup>

An alternative scabies treatment for pregnant or lactating women and children less than 2 months old is precipitated sulfur 6% in petrolatum.<sup>14</sup>

“Wet combing” — a nontoxic (but less efficacious) alternative to pediculocides — involves coating the scalp liberally with conditioner and removing lice and nits with a fine-tooth comb every few days.<sup>6</sup> There are limited efficacy data for the topical acetomicellar complex of acetic acid, citronella oil and camphor (SH-206)<sup>8</sup> or for formic acid preparations,<sup>14</sup> topical vinegar and mineral oil mixtures, or several herbal products.<sup>14</sup> A note of caution, however: “pound for pound” some “natural” therapies such as tea-tree oil may be more toxic to mammals than chemical treatments.<sup>15</sup>

**What to do:** Patients susceptible to scabies and head lice infestations include

children and elderly people,<sup>5,6</sup> homeless people<sup>16</sup> and people in institutions,<sup>1</sup> and they may be the most vulnerable to the adverse effects of agents such as lindane.<sup>4</sup> Alternative agents may be preferable for first-line treatment in these and other cases. In the United States, patient exposure is being minimized by strict warnings on lindane product labels and limits on lindane package sizes.<sup>4</sup> It is unknown yet whether Canada will follow this lead.

Eric Woollorton  
CMAJ

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**Table 1: Prescription pediculocides and scabicides**

### Pediculocides\*

1% permethrin (Kwellada-P Creme, Nix Dermal Creme)

Synthetic pyrethroid;† good ovicidal activity;‡ use with caution in children < 2 yr

Pyrethrin and piperonyl butoxide (R&C Shampoo)

Chrysanthemum extract;† poor ovicidal activity;‡ not restricted in children < 2 yr

Lindane shampoo (Hexit, PMS-Lindane)

Poor ovicidal activity;‡ contraindicated in neonates and people with seizure disorders; use with caution in pregnant and lactating women, children and elderly people

### Scabicides\*

5% permethrin (Kwellada-P Lotion, Nix Dermal Creme)

(See comments for 1% permethrin)

Lindane lotion

(See comments for lindane shampoo)

\*Itch can occur after treatment and last weeks; it does not indicate treatment failure.

†Retreatment is sometimes needed 7–10 days later; for lindane, optimal timing is unknown.

‡Avoid in people allergic to chrysanthemums, pyrethrins or ragweed.